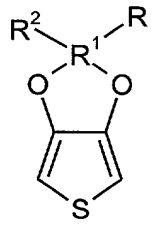
WHAT IS CLAIMED IS:

1. A process for preparing polythiophenes comprising

(1) reacting

(a) one or more thiophenes of the general formula (I)



(I)

wherein R^1 is an unsubstituted or substituted alkylene or an alkenylene radical having from 1 to 10 carbon atoms, and

R and R^2, independently of one another, are hydrogen, a linear or branched alkyl radical having from 1 to 20 carbon atoms, OH, $O\text{-}CH_2\text{-}CH_2\text{-}CH_2\text{-}SO_3H$ or O-alkyl having 1-18 carbon atoms,

(b) at least one compound containing one or more sulfonic acid groups,

(c) at least one oxidant,

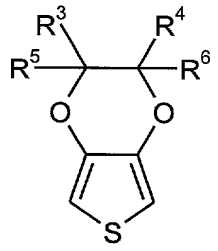
(d) at least one phase-transfer catalyst, and

(e) optionally one or more catalysts, other than the at least one phase-transer catalyst (d) with

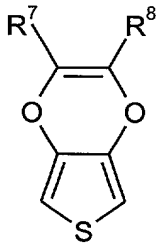
(f) at least one anhydrous or low-water-content solvent at a temperature ranging from 0 to about 150°C, thereby forming a product, and

(2) subsequently working up the product.

2. The process according to Claim 1, wherein the thiophene of the formula (I) is a thiophene of the general formula (II) or (III)



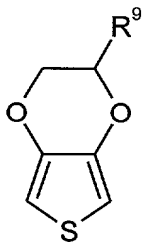
(II) or



(III)

wherein R^3, R^4, R^5, R^6, R^7 and R^8 are hydrogen atoms, alkyl groups having from 1 to 20 carbon atoms, a hydroxymethyl groups, or alkoxymethyl groups having from 1 to 20 carbon atoms which are unsubstituted or substituted by sulfonic acid groups.

3. The process according to Claim 1, wherein the thiophene of the formula (I) is a thiophene of the formula (IV)



(IV)

wherein R^9 is hydrogen or an alkyl radical having from 1 to 20 carbon atoms.

4. The process according to Claim 1, wherein the compound containing one or more sulfonic acid groups is at least one compound selected from the group consisting of polystyrenesulfonic acids and

alkylbenzenesulfonic acids having an alkyl group containing 1–20 carbon atoms.

5. The process according to Claim 1, wherein the oxidant is at least one compound selected from the group consisting of ammonium peroxodisulfate, sodium peroxodisulfate and potassium peroxodisulfate.

6. The process according to Claim 1, wherein the phase-transfer catalyst is at least one compound selected from the group consisting of crown ethers and quaternary ammonium salts, wherein the ammonium salts have at least one hydrocarbon radical having at least 4 carbon atoms.

7. The process according to Claim 1, wherein the solvents are lower alcohols having from 1 to 8 carbon atoms.

8. The process of Claim 7, wherein the solvents are selected from the group consisting of methanol, ethanol, propanol, isopropanol, butanol and pentanol.

9. The process according to Claim 1, wherein the process is carried out by reacting:

(a) from about 0.1 to about 20 mole equivalents of sulfonic acid groups of the compound containing sulfonic acid groups, per mole of thiophenes,

(b) from about 0.9 to about 5.0 mole equivalents of an oxidant , per mole of thiophenes,

(c) from about 0.1 to about 10 mol% of a phase-transfer catalyst, based on the oxidant, wherein the ratio of the thiophenes and solvent is from about 0.001 to about 0.1:1,

(d) from 0 to about 10 mol% of a catalyst, other than the phase-transfer catalyst, based on thiophene,

wherein the ratio of the thiophenes and solvent is from about 0.001 to about 0.1:1.

10. A polythiophene obtained with the process of Claim 1, wherein the polythiophene is a solid, a dispersion or a solution.

11. The polythiophene of Claim 10, wherein the polythiophene is a conductive coating or an anti-static coating.